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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
09/115,963	07/15/98	SCHNEIDER	M 1201-52

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HM12/0425

EXAMINER

HARTLEY, M

ART UNIT	PAPER NUMBER
1619	20

DATE MAILED: 04/25/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trad marks

# Office Action Summary

Application No.

09/115,963

Applicant(s)

SCHNEIDER ET AL.

Examiner

Michael G. Hartley

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1619

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

## Status

- 1) ☒ Responsive to communication(s) filed on 07 December 2000.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-3, 7, 13-22, 26 and 30-48 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3, 7, 13-22, 26 and 30-48 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claims \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. § 119

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
- a) ☐ All b) ☐ Some \* c) ☐ None of the CERTIFIED copies of the priority documents have been:
1. ☐ received.
2. ☐ received in Application No. (Series Code / Serial Number) \_\_\_\_\_.
3. ☐ received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. & 119(e).

## Attachment(s)

- 14) ☐ Notice of References Cited (PTO-892)
- 15) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 16) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 17) ☐ Interview Summary (PTO-413) Paper No(s) \_\_\_\_\_
- 18) ☐ Notice of Informal Patent Application (PTO-152)
- 19) ☐ Other:

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***Continued Prosecution Application***

The request filed on 12/07/2000 for a Continued Prosecution Application (CPA) under 37 CFR 1.53(d) based on parent Application No. 09/115,963 is acceptable and a CPA has been established. An action on the CPA follows.

***Response to Amendment***

The amendment filed 12/7/2000 has been entered. Claims 4-6, 23-25 and 27-29 have been canceled. Claims 1, 2, 7, 13, 15, 16, 17, 18, 19, 20, 26, 32-34 have been amended. Note: This amendment cancels claims 6 and 25 and also attempts to amend claim 6 and 25 by providing amended versions thereof. However, a canceled claim cannot be amended. Claims 6 and 25 therefore have been canceled and are no longer pending in the application. Clarification is requested. Consequently, claims 1-3, 7, 13-22, 26 and 30-48 are pending and have been examined herein.

***Effective Priority Date***

The effective filing date of the instant claims is still considered January 23, 1992, for the reasons set forth in the office action mailed 9/29/1999 (and reiterated in the office action mailed 8/29/2000).

Applicant's arguments with respect to claims 1-3, 7, 13-22, 26 and 30-48 have been considered but are moot in view of the following new ground(s) of rejection.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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Claims 1-3, 7, 13-22, 26 and 30-48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Quay (US 5,393,524).

Quay discloses methods of making a contrast agents for echography having resistance against collapse which comprise forming microvesicles in the presence of a physiologically acceptable gas, wherein the gas may be SF<sub>6</sub>, C<sub>4</sub>F<sub>8</sub>, etc. (which are the same as those instantly claimed), see Table II, column 14. Quay also teaches that various shell materials may be employed to encapsulate the gas in the microvesicles, including phospholipids, denatured albumin, etc., see columns 7-8.

Claims 1-3, 7, 13-22, 26 and 30-48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Glajch (US 5,147,631).

Glajch discloses a method of making a contrast agents for echography having resistance against collapse which comprises forming microvesicles in the presence of a physiologically acceptable gas, wherein the gas may be CF<sub>4</sub>, C<sub>2</sub>F<sub>6</sub>, etc. (which are the same as those instantly claimed), see column 6, lines 62. Glajch also teaches that the gas-containing microvesicles may be coated with various materials, including albumin, phospholipids, etc., which would encompass the envelope as instant claimed, (note: the coating would be at the gas/liquid interface of the porous particles disclosed by Glajch).

Claims 1-3, 7, 13-22, 26 and 30-48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cerny (US 4,957,656), Ryan (US 4,900,540) and Hillman (US 4,466,442) in view of Glajch (US 5,147,631), Quay (US 5,393,524) and Tickner (4,265,251) in further view of the Dupont Technical Bulletin.

Cerny discloses a method of making a contrast agents for echography having resistance against collapse which comprise forming microvesicles in the presence of a physiologically acceptable gas, wherein the microvesicles comprise a shell made out of denatured albumin or denatured hemoglobin, see abstract and column 4.

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Ryan discloses a method of making a contrast agents for echography having resistance against collapse, which comprise forming microvesicles in the presence of a physiologically acceptable gas or gaseous precursor. Ryan discloses that the microvesicles are liposomes, which comprise phospholipids in lamellar form, see columns 2-3.

Hillman discloses a method of making a contrast agents for echography having resistance against collapse which comprise forming microvesicles in the presence of a physiologically acceptable gas, see abstract and column 4, lines 41+. Hillman discloses that the microvesicles are microbubbles, which comprise various envelope-forming materials, such as, phospholipids, polymers, etc., see column 5, lines 23+.

Cerny, Ryan and Hillman fail to specifically disclose the use of the same gases as instantly claimed. However, the use of such gases was known at the time the invention was made, as discussed hereinbelow.

Glajch discloses that various gases, including,  $\text{CF}_4$ ,  $\text{C}_2\text{F}_6$ , etc. (which are the same as those instantly claimed), may be used as equivalents to air and other known gases in ultrasound contrast agents, see column 6, lines 62.

Quay teaches the use of insoluble gases, including,  $\text{SF}_6$ ,  $\text{C}_4\text{F}_8$ , etc., (which are the same as those instantly claimed), and that these gases improve the *in vivo* stability of gas microparticles for ultrasound imaging, see Table II, column 14 and columns 10-13. Quay also teaches that various shell materials may be employed to encapsulate the gas in the microvesicles, including phospholipids, denatured albumin, etc., see columns 7-8.

Tickner discloses that various physiologically acceptable gases, including Freon, may be used as equivalents in gas-containing microbubbles for ultrasound imaging, etc., see column 6, line 66. Tickner also discloses that the microvesicles may be any microbubbles useful for ultrasound, see column 3.

The Dupont Technical Bulletin provides a clearer definition of the term Freon to include various gas species' set forth in the instant claims.

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It would have been obvious to one of ordinary skill in the art to modify the inventions of Cerny, Ryan and/or Hillman by substituting the gas contained therein with gases, such as, those instantly claimed, because it is well known in the art that such gases, e.g.,  $\text{CF}_4$ ,  $\text{C}_2\text{F}_6$ ,  $\text{SF}_6$ ,  $\text{C}_4\text{F}_8$ , Freons, etc., are known to improve the stability thereof, or at least, are equivalent to other known gases for use in ultrasound contrast agents, as shown by Glajch, Quay and/or Tickner. One of ordinary skill in the art would have been motivated to employ any gases known to be useful for ultrasound imaging in the microvesicles disclosed by Cerny, Ryan and Hillman, such as those specifically recited by Glajch, Quay and Tickner, which are known to provide the advantage of increased *in vivo* stability of the microvesicles.

#### **Conclusion**

No claims are allowed at this time.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael G. Hartley whose telephone number is (703) 308-4411. The examiner can normally be reached on M-F, 7:30-5, off alternative Mondays. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Diana Dudash can be reached on (703) 308-2328. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-4556 for regular communications and (703) 308-4556 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1235.

  
Michael G. Hartley  
Primary Examiner  
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MH  
March 28, 2001